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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/719,508	12/12/2000	Jurgen Zindel	514413-3852	8798

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EXAMINER

BALASUBRAMANIAN, VENKATARAMAN

ART UNIT PAPER NUMBER

1624

DATE MAILED: 08/07/2002

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/719,508

Applicant(s)

ZINDEL ET AL.

Examiner

Venkataraman Balasubramanian

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 May 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Applicants' response, which included amendment to claims 1, 7 and 10, filed on 5/14/2002, is made of record.

Claims 1-10 are pending.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Following reasons apply. Any claim not specifically rejected is rejected as being dependent on a rejected claim.

1. Claim 1 is vague and unclear as recites in R¹ definition where " each of the two above radicals independently of one another is unsubstituted, ". It is not clear what is intended. The Marked up copy also recites the same phrase and comparison of original claim 1 appears to indicate omission of the word "substituted". It is not clear what is the scope of the claim now.
2. Recitation of general in claim before formula II implies more than what is being positively recited therein. Its deletion is suggested.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

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Claims 1-10 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for chlorination of triazine compounds bearing R^1 as variously (un)substituted C_1-C_8 alkyl or C_3-C_8 cycloalkyl, does not reasonably provide enablement for alkenyl and alkynyl as substituents in the above said R^1 groups. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims. The following apply:

In evaluating the enablement question, following factors are considered. Note *In re Wands*, 8 USPQ2d 1400 and *Ex parte Forman*, 230 USPQ 546. The factors include: 1) The nature of the invention, 2) the state of the prior art, 3) the predictability or lack thereof in the art, 4) the amount of direction or guidance present, 5) the presence or absence of working examples, 6) the breadth of the claims, and 7) the quantity of experimentation needed.

1. The nature of the invention and the state of the prior art:

The invention is drawn to a process of making 2-amino-4-chloro-1,3,5-triazine of formula (I) by converting a thio group such as alkylthio to chloro group via chlorination with chlorine. Specification is not however adequately enabled as to how to make compounds of formula (I) wherein the said triazine has alkenyl or alkynyl group as substituents permitted on R^1 group which are known to undergo chlorination. See Dorn, H., Chapter 3, Formation of Carbon-Halogen Bonds, pages 102-117, in *Preparative Organic Chemistry* edited by Hilgetag, G., and Martini A.,

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1972. Thus presence of such reactive groups is chemically incompatible with the process of chlorination embraced in the instant claims.

2. The predictability or lack thereof in the art:

Hence the process as applied to the above-mentioned compounds claimed by the applicant is not an art-recognized process and hence there should be adequate enabling disclosure in the specification with working example(s).

4. The amount of direction or guidance present:

Examples illustrated in the experimental section or written description offer no guidance or teachings as to how perform the process of making compound of formula I by chlorination when reactive substituents or chemically incompatible substituents are present in the starting material.

5. The presence or absence of working examples:

Although examples a through example e show the chlorination process, they are limited to compound of formula I with no reactive functionality. There are no representative examples showing the viability of the process for the above said reactive substituents embraced in the instant claims.

6. The breadth of the claims:

Specification has no support, as noted above, for all compounds generically embraced in the claim language would lead to desired compound of formula I with said reactive groups and there is also no valid chemical reasoning for one trained in the art to expect that all these functional groups would be inert toward chlorinating agent- chlorine -embraced in the process claim.

7. The quantity of experimentation needed:

The quantity of experimentation needed would be an undue burden on skilled art in the chemical art since there is inadequate guidance given to the skilled artisan for the many reasons stated above. Even with the undue burden of experimentation, there is no guarantee that one would get the product of desired structure, namely compound of formula I embraced in the instant claims in view of the prior art teachings.

Thus, factors such as "sufficient working examples", the "level of skill in the art and predictability, etc. have been demonstrated to be sufficiently lacking in the case for the instant claims.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

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consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Giencke et al. WO 97/08156 or Lorenz et al. US 6,069,114 in view of Chakrabarti et al., Tetrahedron, 31(16) 1879-1882, 1975 for reasons of record. To repeat:

Giencke et al. teach several diamino triazines, which include those claimed in the instant claims for the same use as herbicides. See formula (I) and the definition of A, X, R¹, R², R³, R⁴, R⁵ and in shown on pages 2-4. Note the definition of these groups i.e. A, X, R¹, R², R³, R⁴, R⁵ include those groups claimed herein for A, R, R¹, R² and R³ of instant compound of formula IV. Note the intermediate compound of formula IV corresponds to instant intermediate of formula I.

Giencke et al. also teaches various processes of making the final product and the intermediate. See pages 19-26. One such process of making the compound of formula I, involves chlorination of 2-alkylthio-triazine and then the displacement of the 2-chloro group in the resultant triazine with amine as claimed in the instant claims. See page 25, second paragraph for the chlorination of 2-alkylthio-triazine and note use of various

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chlorinating agents including chlorine and phosphorous oxychloride, inert organic solvent and suitable reaction temperature are also suggested therein. See pages 19-20 for reaction of 2-chloro-triazine with an amine (i.e. compound IV with V).

However, Giencke et al does not teach an example for making 2-chloro-triazine using the above said chlorination process and reaction of the resultant 2-chloro-triazine with amine. Note experimental details and compounds made shown in Table 1 and 2 are for making final product with no indication that the 2-chloro-triazine compound used for making these compounds, is made via the chlorination process stated above.

The second primary reference, Lorenz et al. also teaches several 2-amino-4-bicycloamino triazines, which include diamino-triazines generically claimed in the instant claims, for use as herbicides. See formula I on col.1 and note the definition of various variable groups. Note on col. 14, Lorenz et al., teaches reaction of compound of formula IV with the amine of formula V to make compound of formula I as claimed in the instant claims. Note the chlorination of intermediate IV is indicated on col. 17 lines 37-42 and the use of chlorinating agents, inert organic solvent and reaction temperature are also suggested in lines 45-55, on col. 18. Note these suggestions are same as those of Giencke et al.

Again, Lorenz et al., also does not teach an example of making the intermediate 2-chloro-triazine using the chlorination process.

But both Giencke et al. and Lorenz et al. rely on the secondary reference, Chakrabarti et al. for experimental support.

Chakrabarti et al. teaches chlorination of analogous triazine compound 11 wherein both the ethylthio group were replaced by chloro groups to get compound 12. See page 1880, compound 11 and compound 12. See page 1881, second column, last paragraph and page 1882, column 1, first paragraph for experimental details of such a chlorination process.

Thus, the secondary reference provides experimental support for the chlorination process.

Furthermore, starting material of the primary references and the secondary reference are analogous in that they are alkylthio-triazines and the process is same, namely chlorination of alkylthio group to form chloro group. Thus, one having ordinary skill in the art at the time of the invention was made would have been motivated to combine either of the primary reference with the secondary reference and employ the process taught by these prior art to the starting materials and reactants including optimization of various process parameters such as reaction conditions, choice of suitable solvent etc. as permitted by the references and expect to obtain the desired product because he would have expected the analogous starting materials and reactants react similarly. It has been held that application of an old process to an analogous material to obtain a result consistent with the teachings of the art would have been obvious to one having ordinary skill. *Note In re Kerkhoven* 205 USPQ 1069.

Comparative data provided on page 17 cannot obviate the obviousness rejection stated above, as it is an improper comparison for the following reasons:

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a) scope of the chlorination process of instant claims is broader than chlorination using chlorine as shown in the example of page 17

b) the duration of chlorination is longer in the prior art than that is used in the comparative study, a shorter duration of chlorination can therefore lead to lower yield

c) one trained in the art would know that duration of chlorination vary with substrate and need to be optimized and

d) this fact is clearly exemplified in the instant examples wherein the chlorination is done for longer time than the comparative example.

Hence, the yields of the comparative and instant examples are not comparable.

Applicants' argument to overcome this rejection is not persuasive.

As noted above, the primary references teach chlorination of alkylthio-triazine to make corresponding chloro-triazine and the secondary reference teaches enablement of the chlorination process. In addition the primary reference teaches the temperature range and choice of suitable solvents. Hence it would motivate one trained in the art to optimize the process of chlorination with the combined teachings.

There is *prima facie* obviousness.

Without conceding to the above, applicants argue that the rejection is unwarranted as the comparative of record is sufficient to overcome the obviousness rejection.

Examiner disagrees. The rejection is warranted. Although a yield of 60-80 % of examples a to e of the instant chlorination process would definitely suggest

unexpected/superior results, the comparison as detailed in example f is not proper comparison. Examples a to e have too many variations from the comparative example f. This regards, applicants attention is drawn to MPEP 716.02(e) and MPEP 2145 which states the following:

Comparison With Closest Prior Art

An affidavit or declaration under 37 CFR 1.132 must compare the claimed subject matter with the closest prior art to be effective to rebut a prima facie case of obviousness. In re Burckel, 592 F.2d 1175, 201 USPQ 67 (CCPA 1979). "A comparison of the claimed invention with the disclosure of each cited reference to determine the number of claim limitations in common with each reference, bearing in mind the relative importance of particular limitations, will usually yield the closest single prior art reference." In re Merchant, 575 F.2d 865, 868, 197 USPQ 785, 787 (CCPA 1978) (emphasis in original). Where the comparison is not identical with the reference disclosure, deviations therefrom should be explained, In re Finley, 174 F.2d 130, 81 USPQ 383 (CCPA 1949), and if not explained should be noted and evaluated, and if significant, explanation should be required. In re Armstrong, 280 F.2d 132, 126 USPQ 281 (CCPA 1960) (deviations from example were inconsequential).

Comparisons when they are two equally close prior art references

Showing unexpected results over one of two equally close prior art references will not rebut prima facie obviousness unless the teachings of the prior art references are sufficiently similar to each other that the testing of one showing unexpected results

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would provide the same information as to the other. In re Johnson, 747 F.2d 1456, 1461, 223 USPQ 1260, 1264 (Fed. Cir. 1984).

The arguments of counsel cannot take the place of evidence in the record. In re Schulze, 346 F.2d 600, 602, 145 USPQ 716, 718 (CCPA 1965); In re Geisler, 116 F.3d 1465, 43 USPQ2d 1362 (Fed. Cir. 1997).

In the instant case the specification is totally silent about the variations in the comparison of example f and example a-e. See pages 15-17. Note examples a to e has too many variations from that of example f.

Furthermore, the primary references clearly teach the temperature range and use of inert solvent and mentions some such solvents. Applicants have not shown that the instant process would give high yield only with the limitations stated therein and that it would not be possible for one trained in the art to use solvents/ temperature taught by the prior art Giencke et al. or Lorenz et al. to arrive at a high yield process.

Hence the rejection is proper and is maintained.

This action is not made FINAL

Any inquiry concerning this communication from the examiner should be addressed to Venkataraman Balasubramanian (Bala) whose telephone number is (703) 305-1674. The examiner can normally be reached on Monday through Thursday from 8.00 AM to 6.00 PM. The Supervisory Patent Examiner (SPE) of the art unit 1624 is Mukund Shah whose telephone number is (703) 308-4716.

The fax phone number for the organization where this application or proceeding is assigned (703) 308-4556.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1235.

V. Balasubramanian

**VENKATARAMAN BALASUBRAMANIAN
PATENT EXAMINER**

7/31/2002.